Using Quantitative Data

MAKING SENSE OF ALL THOSE SPREADSHEETS

Contents

General tips on reporting quantitative findings

Basic descriptive statistics

Using basic Excel visuals to show trends or patterns

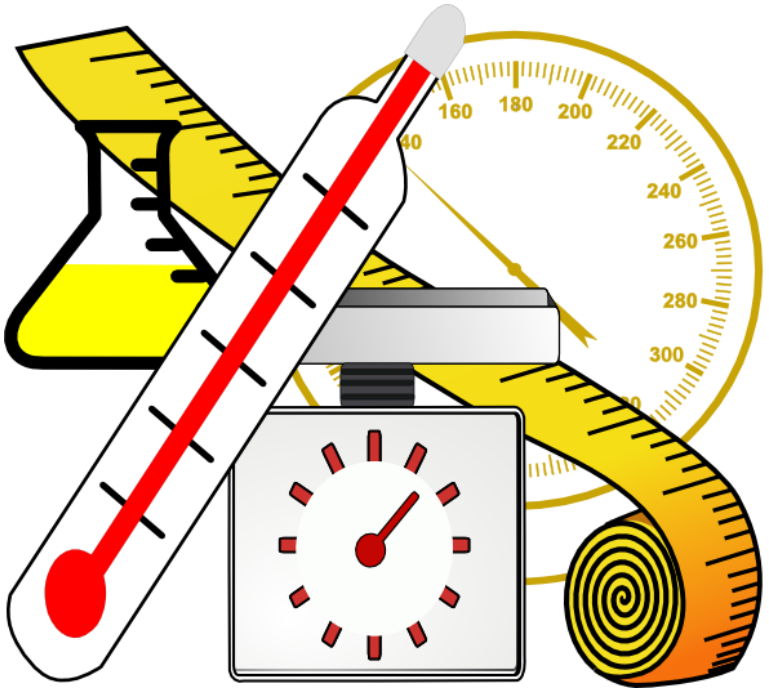
- Pie charts
- Bar charts
- Line charts
- Other formats

What is Quantitative Data?

Any kind of information that is numeric

Typical in youth development programs:

- Demographic data
- Attendance and participation data
- Survey responses
- Assessment results



General Reporting and Analysis Tips

Balance narrative with evidence. The numbers provide details, but they are not the story itself.

Incorporate an equity lens:

- Focus on assets
- Contextualize disparities; focus on the systemic causes of inequity, not just the results

Be careful about claims. Focus on honesty and accuracy in reporting.

Use tables, graphs, and charts appropriately. Visuals can clarify or emphasize a point when used effectively.

Making Accurate Claims

Be clear and specific about data sources

- X "Program participants find program activities challenging"
- ✓ "85% of survey respondents report that they find program activities challenging"

Avoid claiming causation

- X "Program X improves math scores"
- ✓ "Youth who attend program X more than 80% of the time showed stronger gains on math assessments than youth who attended less than 20% of the time"

Structuring Data in Excel (the very basics)

Basic Descriptive Statistics

Measure	Definition	Excel Command(s)
Frequency	How often a value occurs in a dataset	=COUNT(range), =COUNTIF(range, criteria)
Mean	The average of a set of numbers	=AVERAGE(range)
Median	The middle value in a dataset	=MEDIAN(range)
Standard Deviation	Shows how tightly data is clustered around the mean (how much variation there is)	=STDEV.S(range), =STDEV.A,(range), =STDEV.P(range)
Minimum	The minimum value in a dataset	=MIN(range)
Maximum	The maximum value in a dataset	=MAX(range)

Using Visuals

Good visuals should:

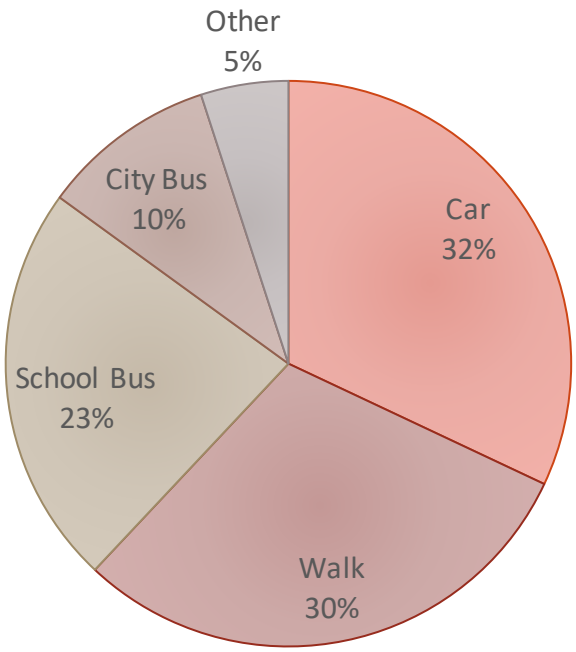
- Capture Attention
- Aid understanding
- Assist memory
- See Stephanie Evergreen's *Presenting Data Effectively* for more

Tables, charts, and graphs

- Supplement storytelling
- NOT supplant storytelling

Typical After-School Transportation, School X

Most student walk or ride in a car



Based on an online survey of 160 School X parents, conducted September 2016

Pie Charts

Show parts of a whole

Can be good for categorical (not ordered) data

Best for five or fewer categories

Use sparingly

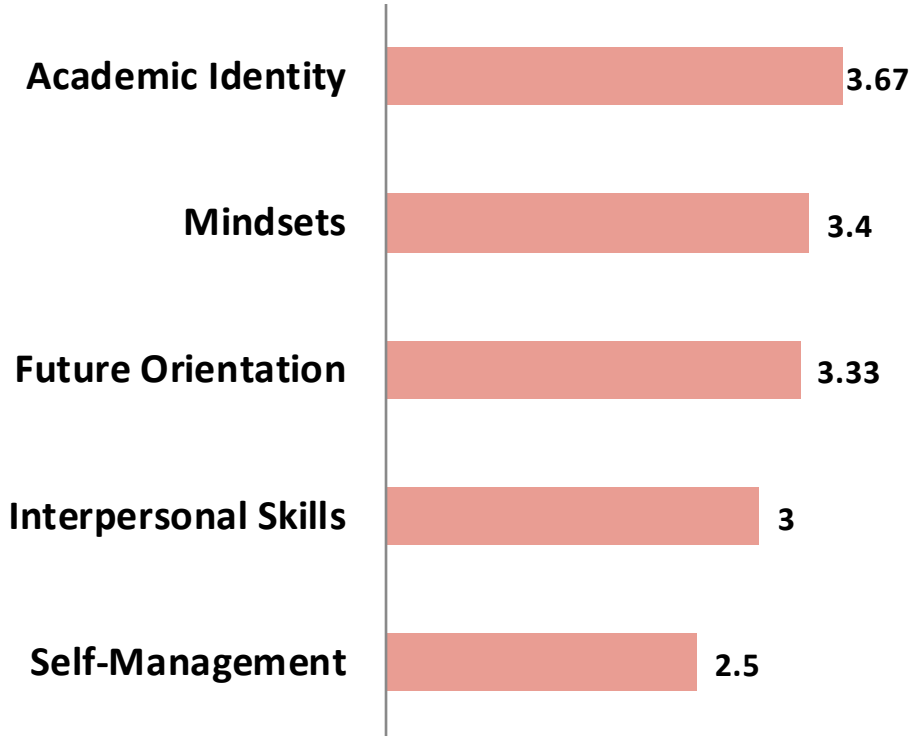
Bar Charts

Used to compare values of categorical data

Can be used to show time serie data

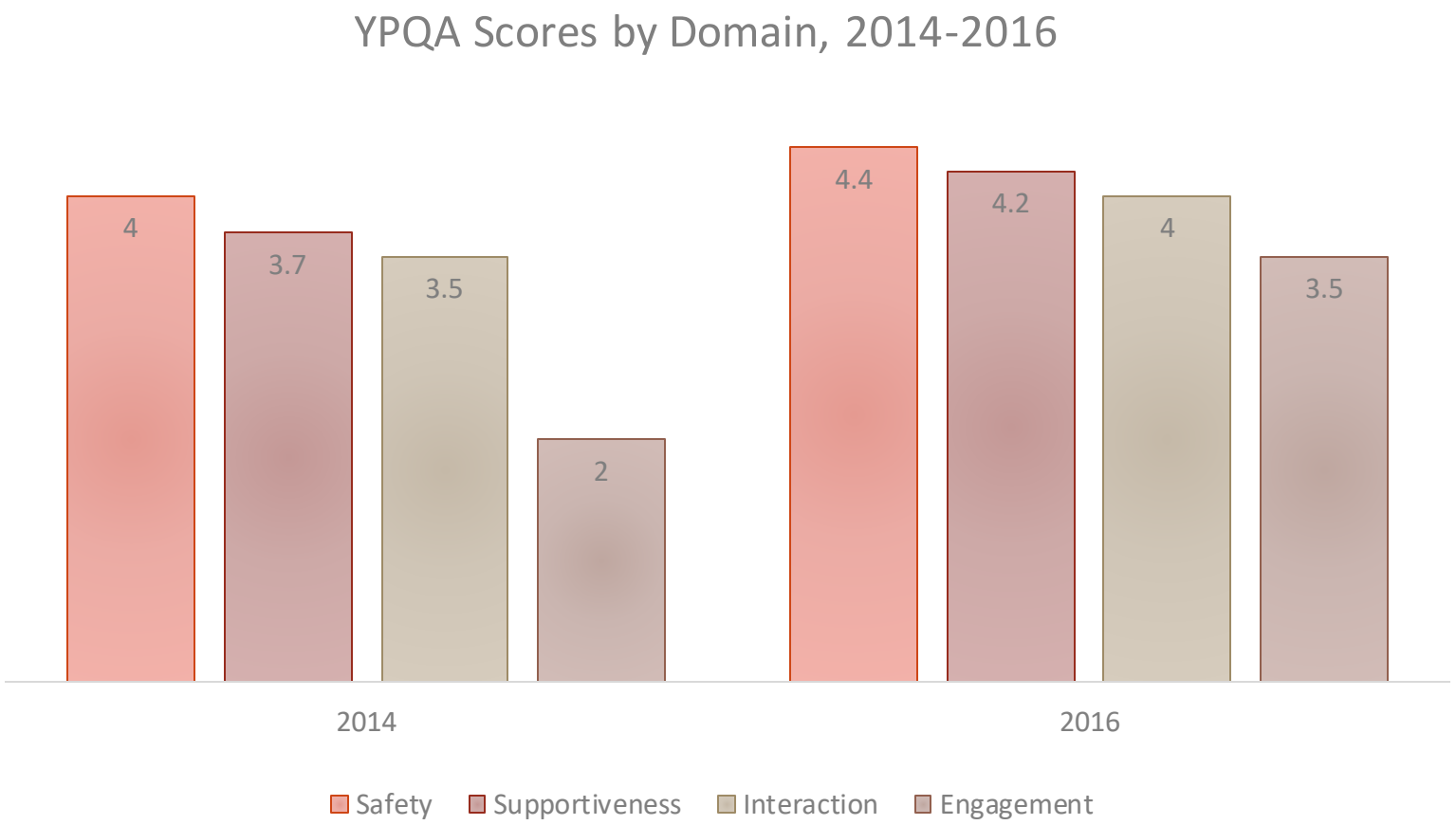
Can be oriented vertically or horizontally

Mean Scale Scores on Youth Skills and Beliefs Survey, Program X

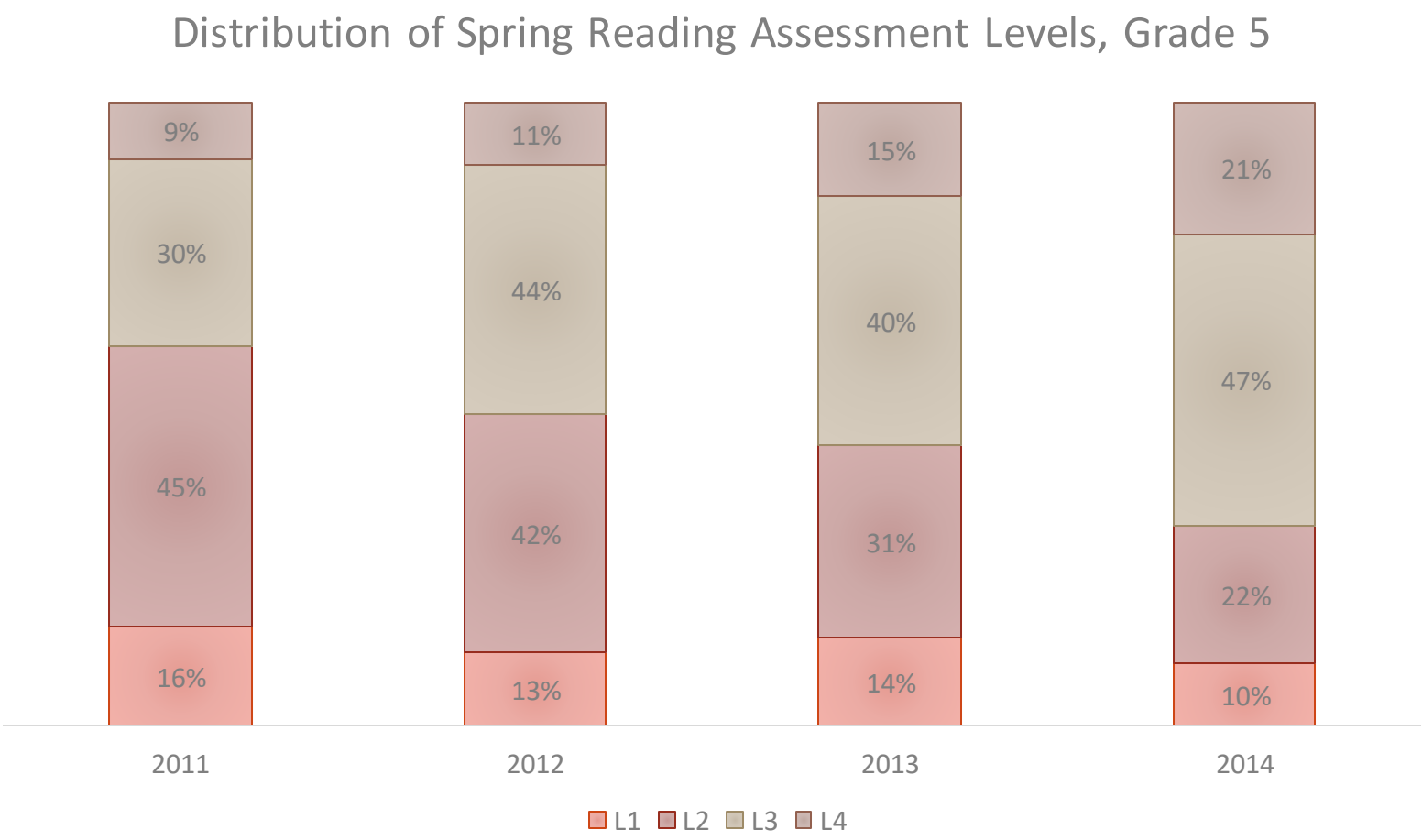


Based on a survey of 245 6th-12th grade students, Spring 2016; Responses ranged from 1 (Not at all True) to 4 (Completely True)

Example: Clustered Bar Chart



Example: Stacked Bar Chart

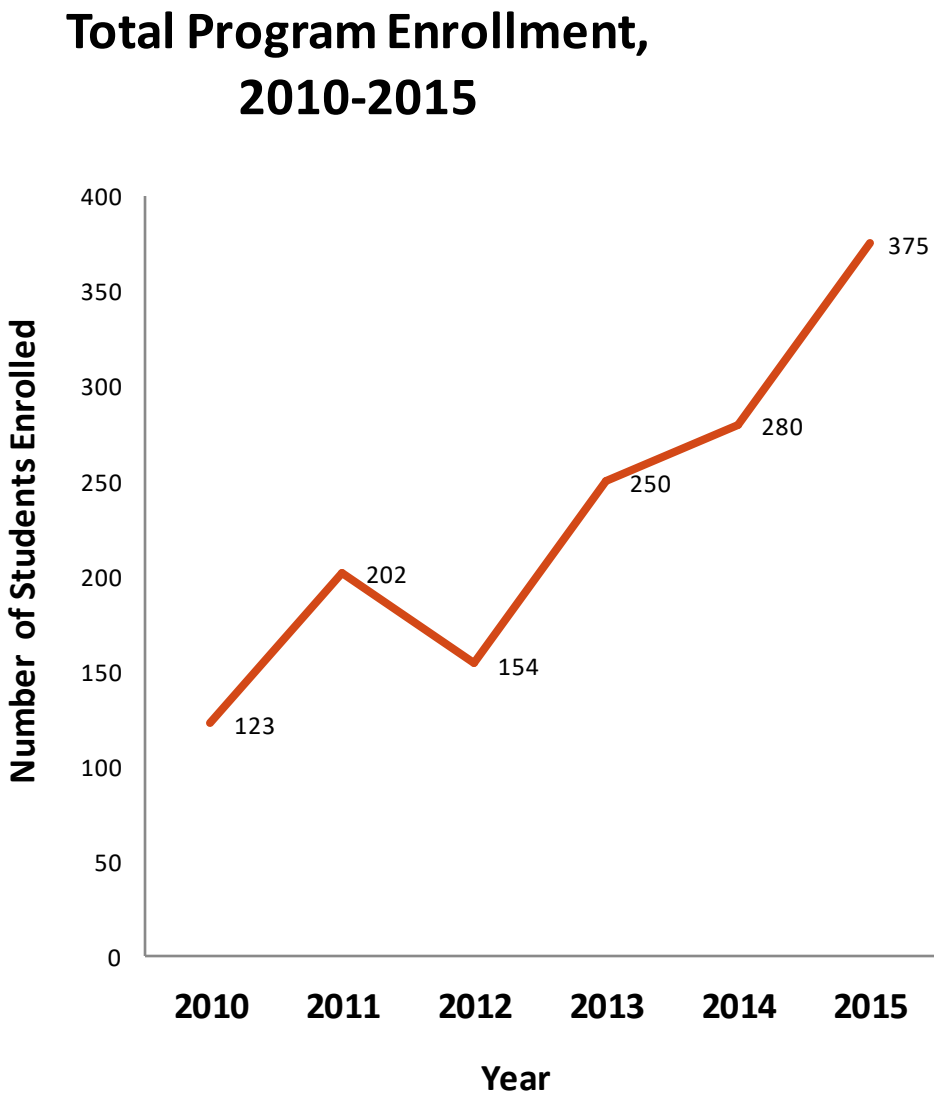


Line Graphs

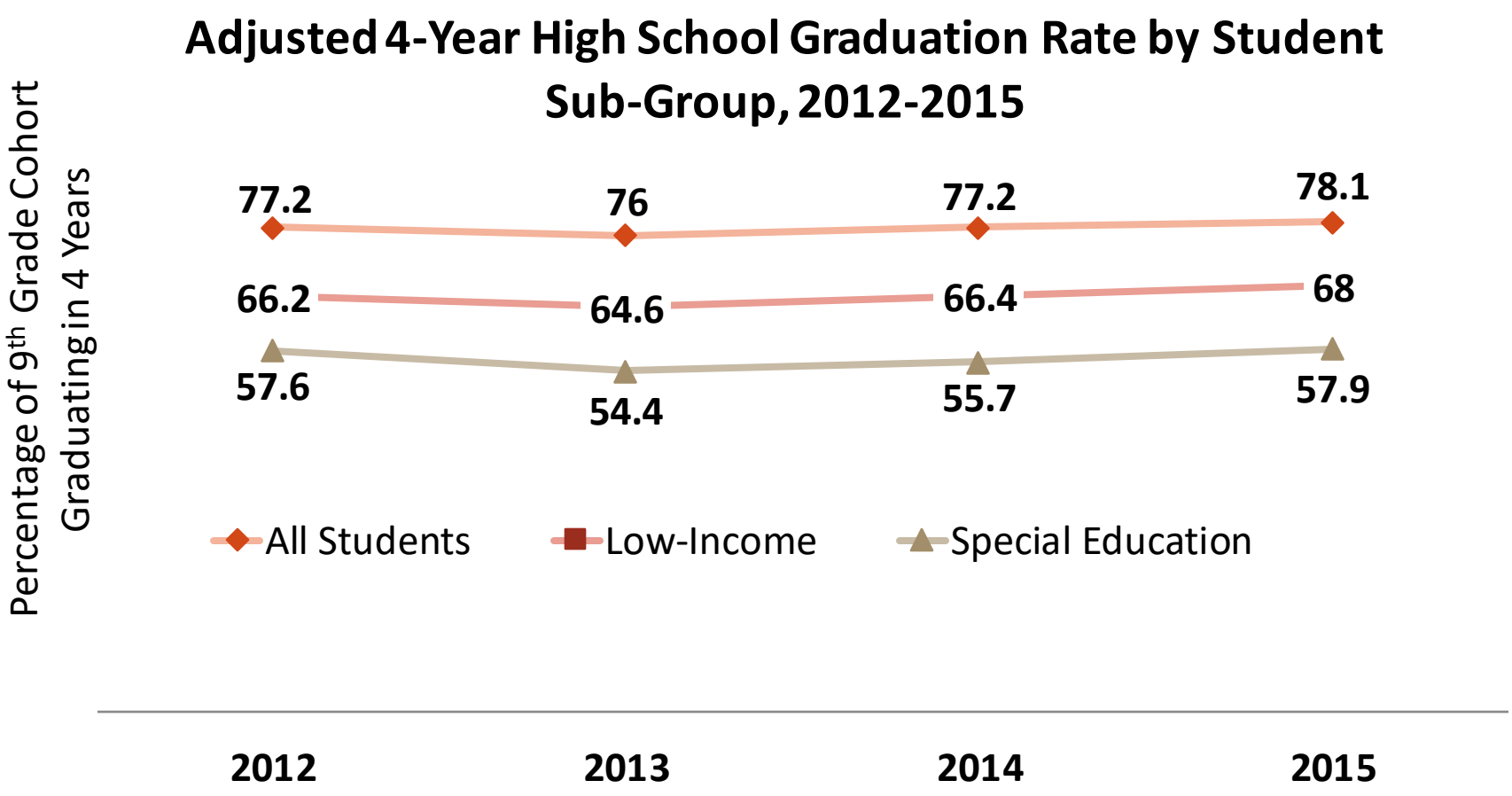
Used to show trends over time

Show how one or more variable(s) changes over time

Time series are usually presented along the horizontal (X) axis



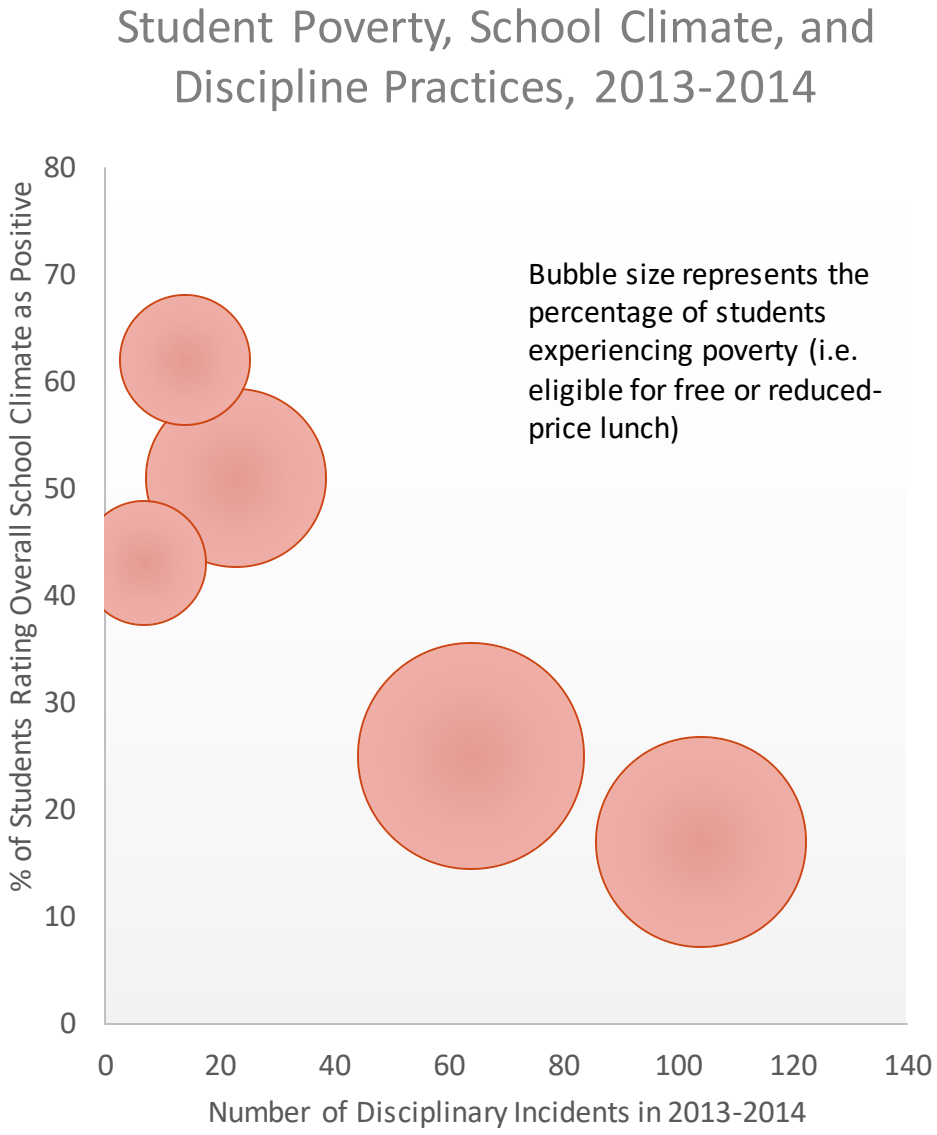
Example: Multiple Groups



Other Formats: Bubble Charts

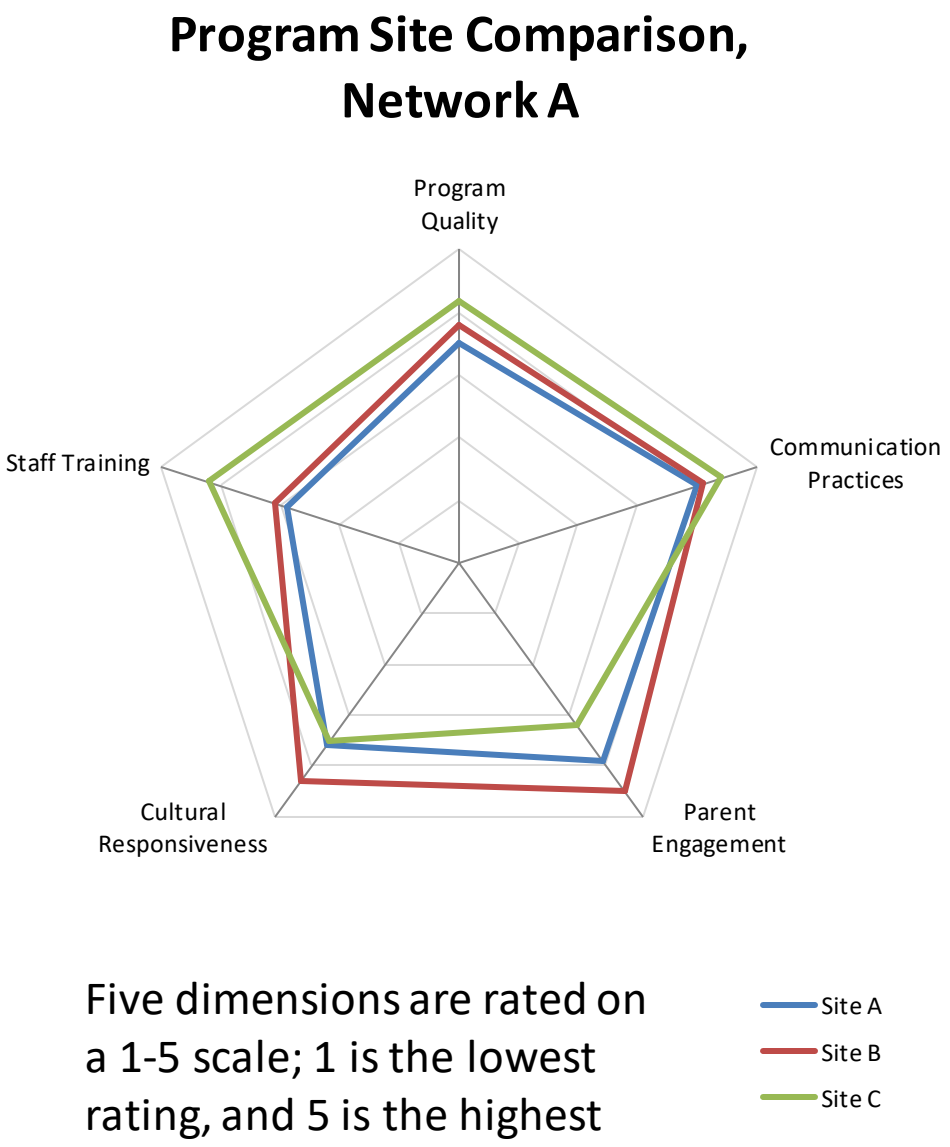
Useful when you have data in 3 series

The third series is shown by the *size* of a bubble plotted on an axis



Other Format: Radar Charts

- Can be used to show multiple dimensions
- Useful when dimensions are independent of one another
- Scales should be equivalent



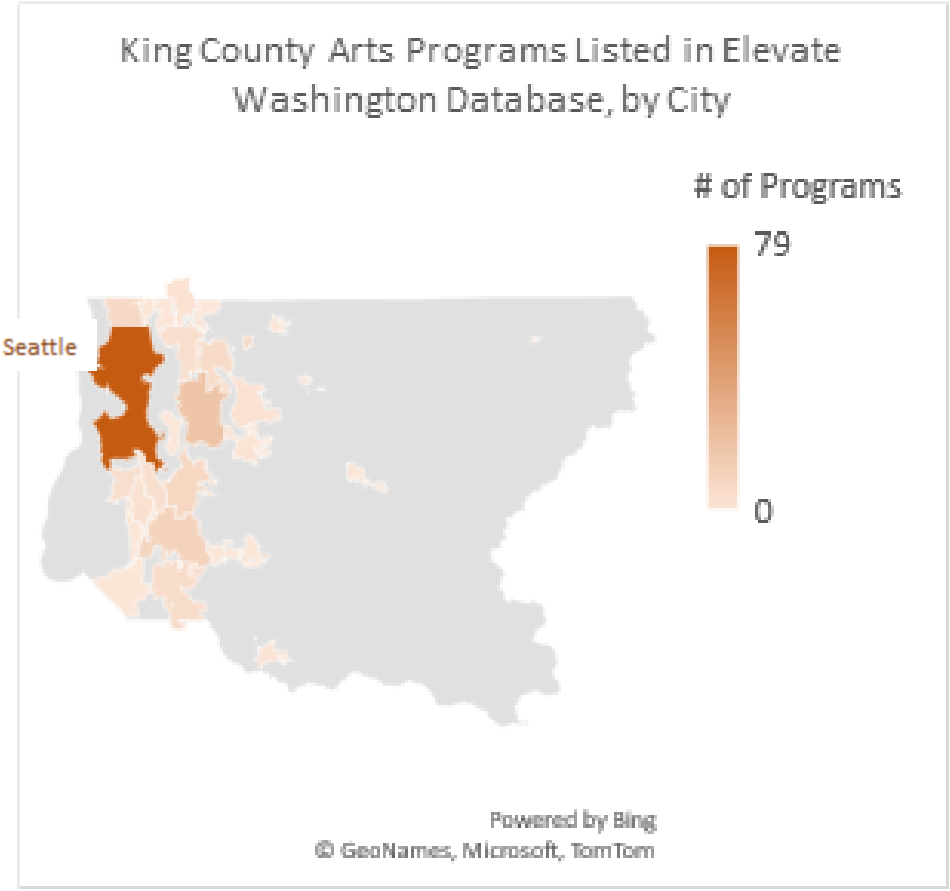
Five dimensions are rated on a 1-5 scale; 1 is the lowest rating, and 5 is the highest

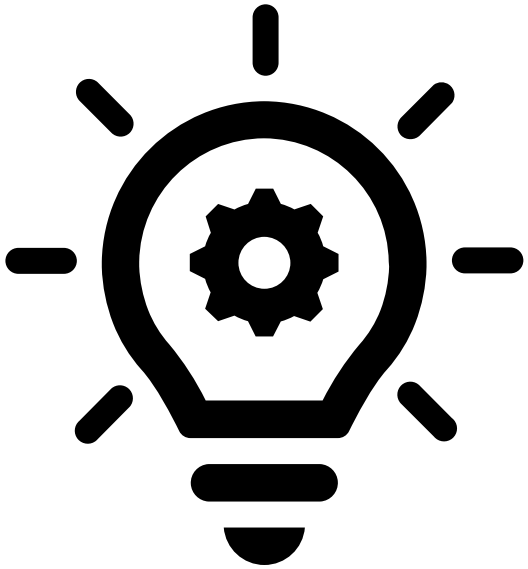
Other Formats: Maps

Useful for data that has a “place” dimension

In Excel:

- Columns should contain geographic data structured in a way that Excel can recognize
- Use the “Geography” button in the Data menu to denote location data





Final Thoughts

Numbers are an important part of the data picture, but they are not the only part

Numbers do a good job of answering *who*, *what*, and *where* questions, but a poor job of answering *why* questions